

1-9 APR 1907

## REPORT ON MACHINERY.

No. 59300

Port of Liverpool

Received at London Office SAT MAY 18 1907

No. in Survey held at Northwich

Date, first Survey 30 Jan'y 1906 Last Survey 3 April 1907

Reg. Book.

80 on the STEEL S.S. K. "CONSTANCE"

(Number of Visits 118)

Gross 209  
Net 76 39/100

Master Built at Northwich By whom built H. J. Yarwood &amp; Sons When built 1907

Engines made at Northwich By whom made H. J. Yarwood &amp; Sons when made 1907

Boilers made at S. By whom made S. when made 1907

Registered Horse Power 30.37 B.H.P. Owners (Black &amp; Grounds Mgrs) Port belonging to Liverpool

Nom. Horse Power as per Section 28 39 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted no

ENGINES, &c.—Description of Engines Compound, surface condensing No. of Cylinders 2 No. of Cranks 2  
 Dia. of Cylinders 13 1/2" - 27" Length of Stroke 20" Revs. per minute 120 Dia. of Screw shaft as per rule 6 1/4" Material of screw shaft as fitted 6 1/4" *See Form*  
 Is the screw shaft fitted with a continuous liner the whole length of the stern tube yes Is the after end of the liner made water tight  
 Is the propeller boss yes If the liner is in more than one length are the joints burned If the liner does not fit tightly at the part  
 between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive If two  
 liners are fitted, is the shaft lapped or protected between the liners Length of stern bush 2'-1"  
 Dia. of Tunnel shaft as per rule none Dia. of Crank shaft journals as per rule 5 1/8" Dia. of Crank pin 6" Size of Crank webs 6 1/2" x 3 1/4" Dia. of thrust shaft under  
 collars 6" Dia. of screw 7'-8" Pitch of Screw 8'-0" No. of Blades 4 State whether movable yes Total surface 17 3/4 #  
 No. of Feed pumps 1 Diameter of ditto 2" Stroke 10" Can one be overhauled while the other is at work  
 No. of Bilge pumps 1 Diameter of ditto 2" Stroke 10" Can one be overhauled while the other is at work  
 No. of Donkey Engines 1 Sizes of Pumps 4" x 4" x 6" No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room 1 @ 2" In Holds, &c. For peak 1 @ 2", Main hold 1 @ 2"

No. of Bilge Injections 1 sizes 2 1/2 Connected to condenser, or to circulating pump Is a separate Donkey Suction fitted in Engine room & size yes - 2"  
 Are all the bilge suction pipes fitted with roses yes Are the roses in Engine room always accessible yes Are the sluices on Engine room bulkheads always accessible none  
 Are all connections with the sea direct on the skin of the ship yes Are they Valves or Cocks both  
 Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates yes Are the Discharge Pipes above or below the deep water line above  
 Are they each fitted with a Discharge Valve always accessible on the plating of the vessel yes Are the Blow Off Cocks fitted with a spigot and brass covering plate yes  
 What pipes are carried through the bunkers none How are they protected  
 Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times yes  
 Are the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges yes  
 Dates of examination of completion of fitting of Sea Connections 29-11-06 of Stern Tube 29-11-06 Screw shaft and Propeller 28-2-07  
 Is the Screw Shaft Tunnel watertight none Is it fitted with a watertight door worked from

BOILERS, &c.—(Letter for record 5) Manufacturers of Steel H. Boardman & Co., & Lancashire Steel Co. Ltd.

Total Heating Surface of Boilers 790 # Is Forced Draft fitted no No. and Description of Boilers one-cyl. multitubular  
 Working Pressure 125 lbs. Tested by hydraulic pressure to 250 lbs. Date of test 20-12-06 No. of Certificate 1819  
 Can each boiler be worked separately Area of fire grate in each boiler 31 # No. and Description of Safety Valves to  
 each boiler 2 - spring loaded Area of each valve 9.62 # Pressure to which they are adjusted 125 lbs. Are they fitted with easing gear yes  
 Smallest distance between boilers or uptakes and bunkers or woodwork 3' 2 1/2" 3 1/2" insulation on bunker sides in way of boiler  
 Thickness 1 1/2" Range of tensile strength 28-32 Are the shell plates welded or flanged no Descrip. of riveting: cir. seams D.R.L.  
 Long. seams T.R., D.B.S. Diameter of rivet holes in long. seams 15/16" Pitch of rivets 6 1/8" Lap of plates or width of butt straps 12 3/4"  
 Per centages of strength of longitudinal joint rivets 122 Working pressure of shell by rules 138 lbs. Size of manhole in shell 16" x 12"  
 Size of compensating ring 6" x 1" No. and Description of Furnaces in each boiler 2 plain Material steel Outside diameter 41 1/2"  
 Length of plain part top 5'-9" Thickness of plates crown 19/32 Description of longitudinal joint welded No. of strengthening rings none  
 bottom 5'-6" Working pressure of furnace by the rules 133 Combustion chamber plates: Material steel Thickness: Sides 9/16" Back 9/16" Top 9/16" Bottom 19/32"  
 Pitch of stays to ditto: Sides 8 1/2" x 8 1/4" Back 9 x 9 Top 8 1/2" x 7 1/4" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 135 lbs  
 Material of stays steel Diameter at smallest part 1.5" Area supported by each stay 81 # Working pressure by rules 148 End plates in steam space:  
 Material steel Thickness 1 1/16" Pitch of stays 15/2 x 15 How are stays secured D.N's Working pressure by rules 163 Material of stays steel  
 Diameter at smallest part 2.93 Area supported by each stay 232.5 # Working pressure by rules 127 Material of Front plates at bottom steel  
 Thickness 1 1/16" Material of Lower back plate steel Thickness 1 1/16" Greatest pitch of stays 14" x 9" Working pressure of plate by rules 219  
 Diameter of tubes 3 1/4" Pitch of tubes 4 1/4" Material of tube plates steel Thickness: Front 1 1/16" Back 5/8" Full Mean pitch of stays 10 5/8"  
 Pitch across wide water spaces 14" Working pressures by rules 125 lbs. Girders to Chamber tops: Material steel Depth and  
 thickness of girder at centre 6 1/2" x 1 3/8" Length as per rule 2'-2" Distance apart 7 3/4" Number and pitch of stays in each 2 @ 8 1/2"  
 Working pressure by rules 163 Superheater or Steam chest; how connected to boiler Can the superheater be shut off and the boiler worked  
 separately Diameter Length Thickness of shell plates Material Description of longitudinal joint Diam. of rivet  
 Pitch of rivets Working pressure of shell by rules Diameter of flue Material of flue plates Thickness  
 If stiffened with rings Distance between rings Working pressure by rules End plates: Thickness How stayed  
 Working pressure of end plates Area of safety valves to superheater Are they fitted with easing gear

W 933 - 0097



# VERTICAL DONKEY BOILER—Manufacturers of Steel

No. *none fitted*  
 Description  
 Made at *By whom made* When made Where fixed  
 Working pressure tested by hydraulic pressure to Date of test No. of Certificate Fire grate area Description of Safety  
 Valves No. of Safety Valves Area of each Pressure to which they are adjusted Date of adjustment  
 If fitted with easing gear If steam from main boilers can enter the donkey boiler Dia. of donkey boiler Length  
 Material of shell plates Thickness Range of tensile strength Descrip. of riveting long. seams  
 Dia. of rivet holes Whether punched or drilled Pitch of rivets Lap of plating Per centage of strength of joint Rivets  
 Working pressure of shell by rules Thickness of shell crown plates Radius of do. No. of stays to do. Dia. of stays  
 Diameter of furnace Top Bottom Length of furnace Thickness of furnace plates Description of joint  
 Working pressure of furnace by rules Thickness of furnace crown plates Stayed by  
 Diameter of uptake Thickness of uptake plates Thickness of water tubes Dates of survey

SPARE GEAR. State the articles supplied:— *Two piston rod keys and bolts and nuts, two bottom end bolts and nuts, two main bearing bolts and nuts, set of coupling bolts and nuts, one set of fuel and bilge pump valves, assorted bolts and nuts, iron of various sizes.*

The foregoing is a correct description,  
*W. J. WOOD & SONS* (Farmer) Manufacturer.

Dates of Survey while building  
 During progress of work in shops— 1906. Jan 30, March 27, May 22, Oct 9, Nov 12, 29, Dec 20, 1907. Jan 4.  
 During erection on board vessel— 1906. Feb 25, March 21, April 23.  
 Total No. of visits 14. Is the approved plan of main boiler forwarded herewith *yes*

Dates of Examination of principal parts—Cylinders  $27/23/10/11$  Slides  $12/11$  Covers  $9/10/12/11$  Pistons  $23/5/10/12/11$  Rods  $27/5/10$   
 Connecting rods  $27/5/10$  Crank shaft  $27/3$  Thrust shaft  $9/10$  Tunnel shafts *none* Screw shaft  $27/5/10/12/11$  Propeller  $12/11$   
 Stern tube  $9/10/12/11$  Steam pipes tested 28-1-07 Engine and boiler seatings  $12/11/29/11$  Engines holding down bolts  $4/1$   
 Completion of pumping arrangements 3-4-07 Boilers fixed 21-3-07 Engines tried under steam 3-4-07  
 Main boiler safety valves adjusted 28-2-07 Thickness of adjusting washers Port & Starboard  $1/2$ "  
 Material of Crank shaft *Steel* Identification Mark on Do. 1657 Material of Thrust shaft *Steel* Identification Mark on Do. 1561  
 Material of Tunnel shafts *none* Identification Marks on Do. ✓ Material of Screw shafts *Iron* Identification Marks on Do. 1659  
 Material of Steam Pipes *Solid drawn copper* Test pressure 250 lbs per square inch.

General Remarks (State quality of workmanship, opinions as to class, &c.)

*The engines and boiler of this vessel have been built under special survey, the material and workmanship are of good quality.*

*The main boiler safety valves were adjusted under steam.*

*The machinery, tried under working conditions, found satisfactory, is eligible, in our opinion, to have notification of + LMC 4.07*

It is submitted that  
 this vessel is eligible for  
 THE RECORD. + LMC 4.07

*J. R. R.*

*9/5/07*  
*9.5.07*

The amount of Entry Fee... £ 1 : 0 : 9  
 Special ... £ 8 : 0 : 9  
 Donkey Boiler Fee ... £ : : :  
 Travelling Expenses (if any) £ 7 : 13 : 7

When applied for, 10/5/07

When received, 9/5/07

*James Cunningham & Richard Sims*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

WRITTEN 4-5-07  
 MACHINERY CERTIFICATE

Committee's Minute

LIVERPOOL

-3 MAY 1907

Assigned



*L.M.C. 4.07*

*When Fee is Paid.*



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